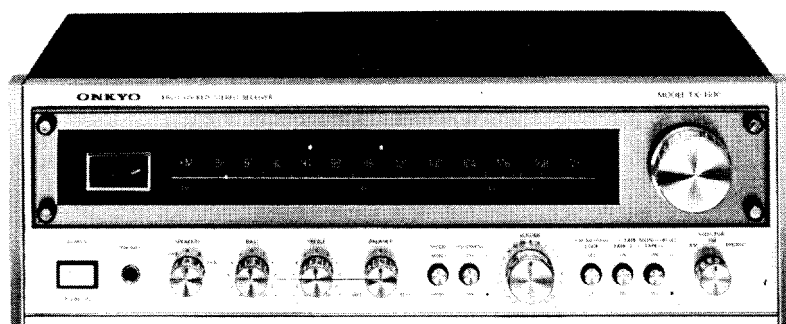


# ONKYO® SERVICE MANUAL

## SERVO LOCKED FM/AM STEREO RECEIVER Model TX-1500



**ONKYO®**  
**AUDIO COMPONENTS**

# SPECIFICATIONS

## U.S.A. Model

### Amplifier section

Power Output	15 watts per channel, min. RMS, at 8 ohms or 4 ohms, both channels driven, from 20 Hz to 20 kHz, with no more than 0.5 % total harmonic distortion. 17 watts per channel, min. RMS, at 8 ohms both channels driven, 1 kHz, 0.5 % THD. 20 watts per channel, min. RMS, at 4 ohms both channels driven, 1 kHz, 0.5 % THD.
Total Harmonic Distortion	0.5 % at rated power 0.3 % at 1 watt output
IM Distortion	0.5 % at rated power 0.3 % at 1 watt output
Damping Factor	20 (8 ohms 1 kHz 10 watts)
Frequency Response	20 - 30,000 Hz ( $\pm 1$ dB)
Sensitivity and Impedance	PHONO: 2.5 mV 50 kohms TAPE PLAY: 150 mV 50 kohms TAPE REC: 150 mV 50 kohms
Phono Overload	100 mV RMS 1 kHz 0.5 % THD
Bass Control	$\pm 12$ dB at 100 Hz
Treble Control	$\pm 10$ dB at 10 kHz
Signal-to-Noise Ratio	PHONO: 65 dB (IHF C NETWORK) TAPE: 80 dB (IHF C NETWORK)
RIAA Curve Deviation	$\pm 0.8$ dB at 30 Hz to 15 kHz

### Tuner section

Tuning Range	FM: 88 - 108 MHz AM: 530 - 1605 kHz
Usable Sensitivity	FM mono: 2.3 $\mu$ V 12.4 dBf FM stereo: 5 $\mu$ V 19.2dBf AM: 25 $\mu$ V
50 dB Quieting Sensitivity	FM mono: 4.5 $\mu$ V 18.3 dBf FM stereo: 50 $\mu$ V 39.2 dBf
Intermediate Frequency	FM: 10.7 MHz AM: 455 kHz
Capture Ratio	FM: 2 dB
Image Rejection	FM: 45 dB AM: 40 dB
IF Rejection	FM: 80 dB AM: 30 dB
Signal-to-Noise Ratio	FM mono: 65 dB FM stereo: 60 dB AM: 40 dB
Alternate Channel Att.	FM: 60 dB
AM Suppression	FM: 50 dB
Harmonic Distortion	FM mono: 0.25 % AM: 0.9 % FM stereo: 0.5 %
Frequency Response	FM: 30 - 15,000 Hz $\pm 1.5$ dB
Stereo Separation	FM: 35 dB at 1 kHz 30 dB at 100 - 10,000 Hz
Muting Level	FM: 3 $\mu$ V (14.7 dBf)
Stereo Lamp Level	FM: 3 $\mu$ V (14.7 dBf)
Locking Level	FM: 3 $\mu$ V (14.7 dBf)
Tuning Meter	Signal Strength Meter

### General

Power Supply	AC 120 V 60 Hz.
Dimensions (W x H x D)	17-5/16" x 5-7/8" x 12-3/16"
Weight	439 x 149 x 310 mm 16.1 lbs. 7.3 kg.

## Universal Model

### Amplifier section

Power Output	70 watts total at 4 ohms 0.5 % THD. 20 watts per channel, min. RMS, at 4 ohms both channels driven, 0.5 % THD. at 1 kHz 17 watts per channel, min. RMS, at 8 ohms both channels driven, 0.5 % THD. at 1 kHz 15 watts per channel, min. RMS, at 4 ohms or 8 ohms both channels driven, from 20 Hz to 20 kHz, 0.5 % THD.
Total Harmonic Distortion	0.5 % at rated power 0.3 % at 1 watt output
IM Distortion (70 Hz: 7 kHz= 4 : 1)	0.5 % at rated power 0.3 % at 1 watt output
Damping Factor	20 (8 ohms 1 kHz)
Frequency Response	20 - 20,000 Hz ( $\pm 1$ dB)
Sensitivity and Impedance	PHONO: 2.5 mV 50 kohms TAPE PLAY: 150 mV 50 kohms TAPE REC: 150 mV 50 kohms 100 mV RMS at 1 kHz 0.5 % THD.
Phono Overload	$\pm 12$ dB at 100 Hz
Tone Control BASS TREBLE	$\pm 10$ dB at 10 kHz
Signal-to-Noise Ratio	PHONO: 65 dB (IHF C NETWORK) TAPE: 80 dB (IHF C NETWORK)
RIAA Curve Deviation	$\pm 0.8$ dB at 30 Hz to 15 kHz

### Tuner section

Tuning Range	FM: 88 - 108 MHz AM: 530 - 1605 kHz
Usable Sensitivity	FM mono: 2.3 $\mu$ V (12.4 dBf) IHF 1.8 $\mu$ V (S/N 26 dB, 40 kHz Devi.) DIN FM stereo: 5 $\mu$ V (19.2 dBf) IHF 50 $\mu$ V (S/N 46 dB, 40 kHz Devi.) DIN AM: 25 $\mu$ V
50 dB Quieting Sensitivity	FM mono: 4.5 $\mu$ V (18.3 dBf) FM stereo: 50 $\mu$ V (39.2 dBf)
Intermediate Frequency	FM: 10.7 MHz AM: 455 kHz
Capture Ratio	FM: 2 dB
Image Rejection Ratio	FM: 45 dB AM: 40 dB
IF Rejection Ratio	FM: 80 dB AM: 30 dB
Signal-to-Noise Ratio	FM mono: 65 dB AM: 40 dB FM stereo: 60 dB
Alternate Channel Att. Selectivity	FM: 60 dB FM: 42 dB DIN ( $\pm 300$ kHz, 40 kHz Devi.)
AM Suppression Ratio	FM: 50 dB
Harmonic Distortion	FM mono: 0.25 % AM: 0.9 % FM stereo: 0.5 %
Frequency Response	FM: 30 - 15,000 Hz $\pm 1.5$ dB
Deemphasis Switch	FM: 50 $\mu$ s/75 $\mu$ s
Stereo Separation	FM stereo: 35 dB at 1 kHz 30 dB at 100 - 10,000 Hz
Muting Level	FM: 3 $\mu$ V
Stereo Threshold	FM: 3 $\mu$ V
Servo Lock Lamp Level	FM: 3 $\mu$ V
Spurious Rejection	FM: 78 dB (1/2 IF)
Sub Carrier Suppression	FM: 40 dB
Tuning Meter	Signal strength meter

### General

Power Supply Rating	AC 110/120/220/240 volts 50/60 Hz
Controls	POWER SPEAKERS (OFF, A, B, A+B) SELECTOR (AM, FM, PHONO) TAPE MONITOR 1 & 2 TUNING, VOLUME, BALANCE, TREBLE, BASS FM MUTING/SERVO LOCK SWITCH LOUDNESS, MODE
Antennas	FM: 300 ohms balanced AM: built in ferrite core antenna and external terminal
Outputs	SPEAKER A & B, HEADPHONES TAPE REC OUT 1 & 2, DIN REC OUT
Inputs	PHONO, TAPE PLAY 1 & 2, DIN PLAY FM & AM ANTENNA
Dimensions	439 W x 149 H x 310 D mm
Weight	7.3 kg.
Semiconductors	1 FET, 12 Transistors, 7 ICs, 21 Diodes

## SERVICE PROCEDURES

### 1. REMOVAL OF DIAL GLASS

- (1) Pull TUNING knob off the TUNING shaft.
- (2) Remove four hex bolts.

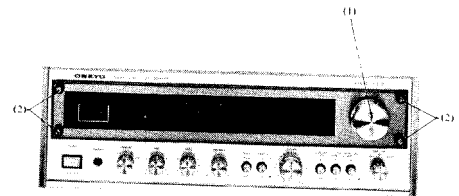


fig-1

### 2. REMOVAL OF FRONT PANEL

- (1) Pull all knobs off control shafts.
- (2) Remove two hex bolts.
- (3) Remove three screws.

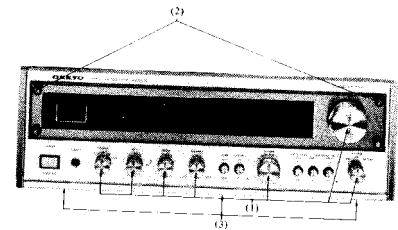


fig-2

### 3. REPLACING STEREO / LOCKED INDICATOR (L.E.D.)

- (1) Remove four screws which hold the top cover to the chassis and lift off the top cover.
- (2) Remove a screw which holds the PC board to the front bracket.
- (3) There is a cathode mark on the foot of L.E.D.

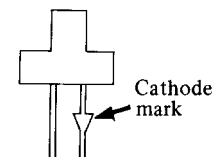


fig-3

### 4. REPLACING DIAL LAMP

- (1) Remove four screws which hold the top cover to the chassis and lift off the top cover.
- (2) Remove the two screws which hold the lamp case to the front bracket.

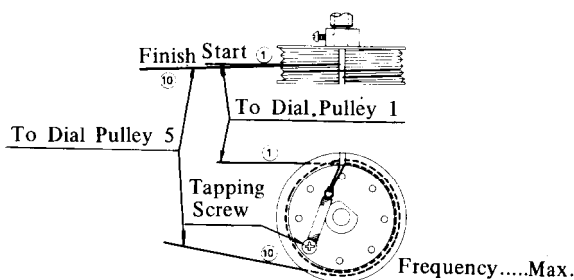
### 5. REPLACING POWER FUSE (U.S.A. MODEL)

- (1) Remove four screws which hold the top cover to the chassis and lift off the top cover.
- (2) Replace a fuse between a back panel and a power transformer.

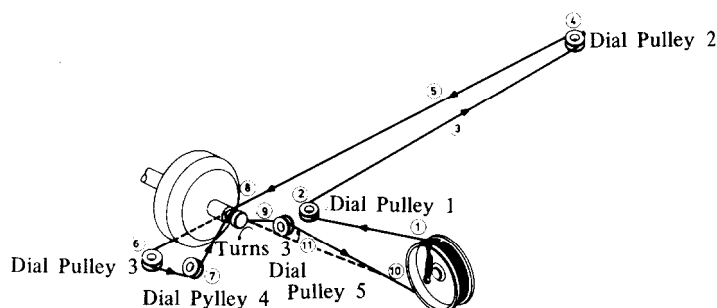
### 6. REPLACING SPEAKER FUSE

- (1) Remove a screw which holds the fuse cover to the back panel.

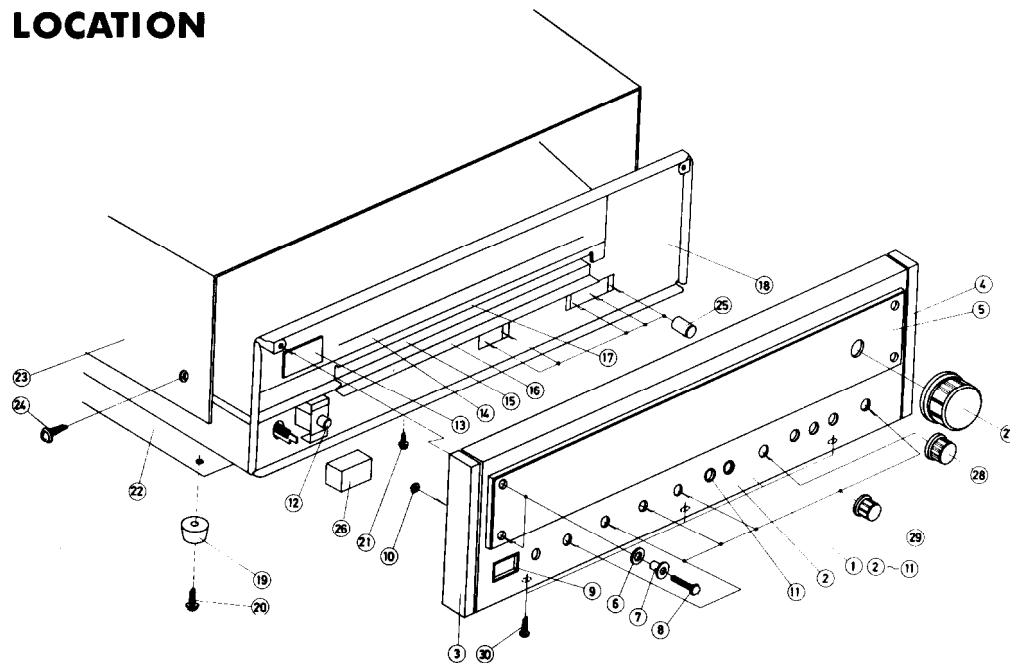
## STRINGING DIAGRAM



1. Open the variable capacitor complete and tie dial cord to the spring of the drum.
2. Thread dial cord in the direction of arrow from ① to ⑧ and wind dial cord three turns around the tuning shaft counter-clockwise.
3. Thread dial cord in the direction of arrow from ⑨ to ⑩.
4. Thread dial cord to the dial pulley 5.



## COMPONENT LOCATION



## PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
1	13779121	Front Panel Ass'y	16	27300036	Pointer Rail
2	27210067	Front Panel	17	28165031	Pointer
3	28125039A	End Cap, Left	18	27110037	Front Bracket
4	28125040A	End Cap, Right	19	280379	Leg
5	28191016A	Dial Glass	20	831130162	3STW+16BQ
6	870054	Washer	21	831130062	3STW+6BQ
7	27270017A	Spacer	22	27170024	Bottom Board
8	84334015	M4x15 Hex Volt	23	28184023A	Amp. Cover (U.S.A. Model)
9	27267026	Power Switch Guide		28184024	Amp. Cover (Universal Model)
10	863140	N-4F-N Nut	24	838440109	4TTB+10C (BC)
11	27267010	Push Switch Guide	25	28320133	Push Button A
12	25045018	LJ-100-H Stereo Headphone Jack	26	28320171A	POWER Knob
13	243069	NIND-0500S69 Strength Meter	27	28320170	TUNING Knob
14	28130048A	Dial Plate	28	2830132	VOLUME Knob
15	27240011	Bracket, Dial Plate	29	28320131	TONE Knob
			30	834130062	3STS+6BQ

## PC BOARD PARTS LIST

### NAAR-395 PC. BOARD-PARTS LIST

CIRCUIT NO.	DESCRIPTION	STOCK NO.	CIRCUIT NO.	DESCRIPTION	STOCK NO.
	<b>TRANSISTORS</b>			<b>ICS</b>	
Q001	2SC380(O) or FM RF. Amp.	2210123 or	Q102	LA1230, Quadrature Det.	222455
	2SC380(Y)	2210124	Q103	LA3350, MPX.	222449
Q002	2SC785(O-1), Mixer	2210380	Q104	HA-1151, AM	222418
Q003	2SC394(O), FM OSC.	2210393	Q301, Q401	TA7129(ONK), EQ. Amp.	222451
Q101	2SC380(O) or FM IF Amp.	2210123 or	Q501, Q502	STK-075, Power Amp.	222010
	2SC380(Y)	2210124		<b>DIODES</b>	
Q105	2SC1317(R) or Locked Lamp Switch	2210943 or	D001	1S2687, Variable Capacitor	223110
	2SC1740(Q)	2211182	D101, D102		
Q106	2SC1317(Q) or Mono-ST. Switch	2210942 or	D105, D108	1S1555	223105
	2SC735(Y)	2210244	D702-D704		
Q107	2SC945(K) or Muting	2210741 or	D106	VD1212, Varistor	4000022
	2SC1740(S)	2211184	D109	1N60	223103
Q108	2SC1740(S), Locked Lamp Switch	2211184	D701	1S1554	223106
Q302, Q402	2SC1312(G) or Tone Amp.	2210137 or	D901, D903	GP-15B	223842
	2SC1344(E)	2210975	D905, D907		
Q701, Q702	2SC733(BL) or Transient Killer	2210086 or	D909, D910	10D2	223805
	2SC1740(S)	2211184	D911	1S1886 or	223806
Q703	2SC1318(R) or Rectifier	2211043 or	D912	BZ-130	223929
	2SC1318(S)	2211044	D913	WZ-150	223915

## NAAR-395 PC. BOARD-PARTS LIST

CIRCUIT NO.	DESCRIPTION	STOCK NO.	CIRCUIT NO.	DESCRIPTION	STOCK NO.
<b>COILS</b>					
L001	NFA-3001 or FM RF.	233088-1	C701	4.7μF50V, Elect.	352780471
	NFA-3009	233106	C702	220μF16V, Elect.	352742211
L002	NFRF-3005, FM RF.	233103	C705	22μF35V, Elect.	352762201
L003	NFT-1501, FM RF.	233037	C706	220μF35V, Elect.	352762211
L004	NFO-3003, FM OSC.	233090	C914	470μF50V, Elect.	352784711
L101	NCCH-1501 or 3.3μH	233024	C915	470μF35V, Elect.	352764711
	NCCH-1005	233105	C916	100μF16V, Elect.	352741011
L102	NCCH-1506 18μH	233074	<b>VARIABLE RESISTORS</b>		
L103, L104	NMC-8-5, L.P.F.	233021	R149	N10HR1KBC, Separation Adjust.	5225018
L106	NMO-2503, AM OSC.	232013	R152	N10HR5KBC, 19 kHz Adjustment	5225056
<b>TRANSFORMERS</b>			R336, R436	N24RGP250KBT30-41C, Volume	5172042
T001	NIT-0518, FM IF.	233085	R342	N16RL100KW30, Balance	5104046
T101	NIT-3516 or FM Det.	233083	R345, R351	N16RGM100KB30, Tone	5148014
	NFIF-6003	233101	R445, R451		
T102	NIT-0519, AM Det.	232041	<b>RESISTORS</b>		
<b>CERAMIC FILTERS</b>			R701	1.2kΩ2W, Oxide Film	441721224
X101, X102	SFE-10.7MA, FM IF.	3010003	R709	620Ω21W, Oxide Film	431626214
X103	CFZ-455C, AM IF.	3010004	R904	100Ω2W, Oxide Film	441721014
<b>CAPACITORS</b>			R905	220Ω2W, Oxide Film	441722214
VC001-VC005	NVC2-327SA, Variable	3050004	R157	560Ω21W, Oxide Film	431625614
TC005	NTC-10P02, Trimmer	3060003	<b>SWITCHES</b>		
C107	4.7μF, 25V, Elect.	35275047	S801	NRS-143-30ZV, Source Selector	25030075
C106	22μF10V, Elect.	35273220	S802-S804	NPS-122X3LA, Mut. Tape-1, 2	25035032
C110, C142	10μF16V, Elect.	352741001	S805, S806	NPS-222-L14A, Loudness, Mode	25035049
C143	1μF50V, Elect.	352780101	<b>TERMINALS</b>		
C144, C145	0.22μF±20% 50V, LL	392882297	P801	NPJ-2PDBL10, Phono Input	25045034
C153	150pF±10% 50V, Polystyren	372321525	P802, P803	NPJ-4PDBL11, Tape	25045020
C154	0.47μF±20% 50V, LL	392884797	<b>SHIELDED PLATES</b>		
C155	0.22μF±20% 50V, LL	392882297	Front End Top		27150056A
C156	0.33μF±20% 50V, LL	392883397	FM OSC.		27150057
C158	220μF16V, Elect.	352742211	The Universal type adds from the USA model at the following parts.		
C160	47μF10V, Elect.	352734711	S807	NSS-2225, De Emphasis	
C166	360pF±5% 50V, Polystyren	372323614	Selector Switch		250142
C170	1μF50V, Elect.	352780101	P804	S-13316, DIN Socket	250199
C173	3.3μF50V, Elect.	352780331			
C175	0.039μF±20% 50V, DE	374123937			
C176	10μF16V, Elect.	352741001			
C177	100μF16V, Elect.	352741011			
C178	100μF6.3V, Elect.	352721011			
C302, C402	4.7μF25V, Elect.	352750471			
C303, C304	100μF, 6.3V, Elect.	352721011			
C308, C408	0.47μF50V, Elect.	352784791			
C309, C409	0.33μF±20% 50V, LL	392883397			
C311	330μF35V, Elect.	352763311			
C332, C432	0.047μF±10% 50V, DE	374124735			
C333, C433	2.2μF±20% 50V, LL	392880227			
C335, C435	220μF16V, Elect.	352742211			
C336, C436	3.3μF50V, Elect.	352780331			
C337, C437					
C501, C601	1μF±20% 50V, LL	392880107			
C502, C602	33μF10V, Elect.	352733301			
C506, C606	100μF16V, Elect.	352741011			
C507, C607	47μF50V, Elect.	352780471			
C508, C608					
C511, C611	4.7μF50V, Elect.	352780471			

## PILOT LAMP PC. BOARD-PARTS LIST

CIRCUIT NO.	DESCRIPTION	STOCK NO.
<b>PILOT LAMPS</b>		
PL801-PL803	250mA, 6.3V, Dial Illumination	210026
	Fuse Holder, SN5051	250113
PL804	DIAL POINTER LAMP	210015A

## L.E.D.PC. BOARD-PARTS LIST

CIRCUIT NO.	DESCRIPTION	STOCK NO.
D801, D802	SE1103R, L.E.D.	225010

## POWER FUSE PC. BOARD-PARTS LIST (Only U.S.A. Model)

F901	2A(ST-2), Fuse	252044
	Fuse Holder, SN5051	250113

# ALIGNMENT PROCEDURES

## INSTRUMENTS REQUIRED

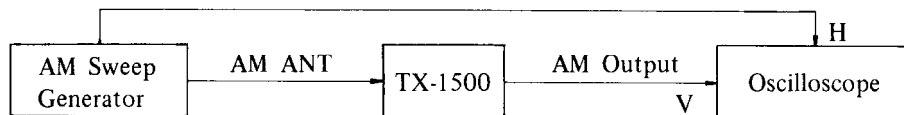
1. AM Sweep Generator
2. AM and FM Signal Generator
3. Vacume Tube Voltage Meter (VTVM) AC, DC
4. Oscilloscope
5. Distortion Analyzer
6. Stereo Modulator
7. Frequency Counter

## GENERAL ALIGNMENT CONDITIONS

1. Signal input should be kept as low as possible.
2. Standard modulation is 400Hz 30 % (AM), 400Hz 100 % (FM MONO) pilot 10 % sub and main 90 % (FM STEREO).

### (1) AM IF ALIGNMENT

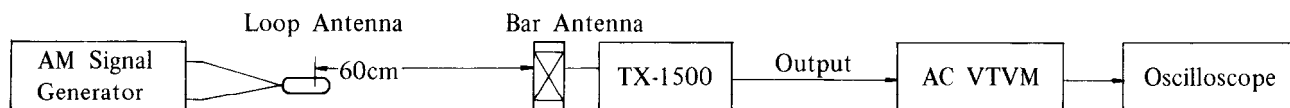
1. Set SELECTOR switch to AM.
2. Set radio dial to quiet point.



Set signal	Adjust	Oscilloscope	Remarks
455 KHz	X103 (CFZ-455C)	Maximum Symmetrical Response	Usually not necessary to adjust

### (2) AM RF ALIGNMENT

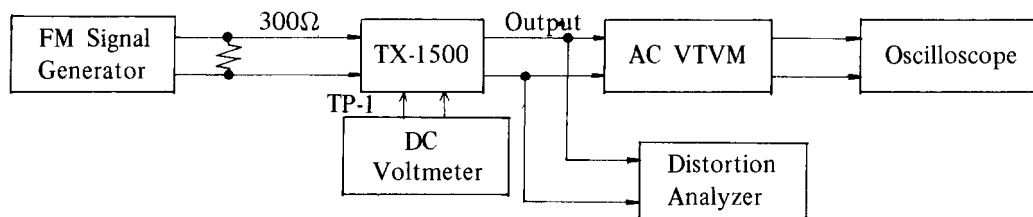
1. Remove a screw on the AM antenna cover.



Step	Set Signal	Set Radio Dial	Adjust	VTVM reading	Remarks
1	515 KHz 400 Hz 30 %	Lower end (515 KHz)	L103 NMO-2503	Maximum	Repeat step 1 and 2 as necessary
2	1680 KHz 400 Hz 30 %	Upper end (1680 KHz)	TC-002	Maximum	
3	600 KHz 400 Hz 30 %	600 KHz	L005 NMA-1008	Maximum	Repeat step 3 and 4 as necessary
4	1400 KHz 400 Hz 30 %	1400 KHz	TC-001	Maximum	

### (3) FM FRONT END ALIGNMENT

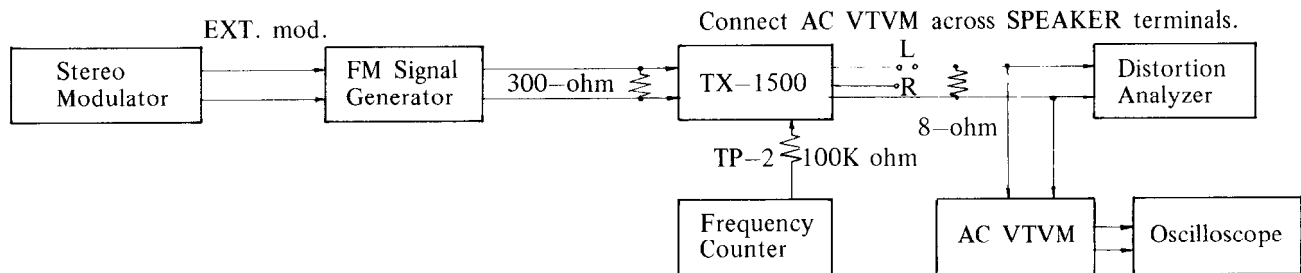
1. Set SELECTOR switch to FM.
2. Push MUTING switch to off.
3. Connect FM Signal Generator to 300-ohm antenna terminals.
4. Connect DC Voltmeter to TP-1 terminals.



Step	FM Signal Generator	Dial to set	Adjust	Output Indicator	Adjust for	Remarks
1	No signal	Quiet Point	T101 Bottom	DC Voltmeter	OV	Repeat step 1 and 2 as necessary.
2	98 MHz 60 dB 400 Hz 100% mod.	98 MHz	T101 Top	Distortion Analyzer	Minimum	
3	90 MHz 60 dB 400 Hz 100% mod.	90 MHz	L004 OSC Coil NFO-3003	AC VTVM or Oscilloscope	Maximum	Repeat step 3 and 4 as necessary.
4	106 MHz 400 Hz 60 dB 100% mod.	106 MHz	TC005		Maximum	
5	90 MHz 400 Hz 100% mod.	90 MHz	L001, L002		Maximum	Repeat step 5 and 6 as necessary.
6	106 MHz 400 Hz 100% mod.	106 MHz	TC003 TC004		Maximum	
7	98 MHz 400 Hz 100% mod.	98 MHz	T001 NIT-0518		Maximum	

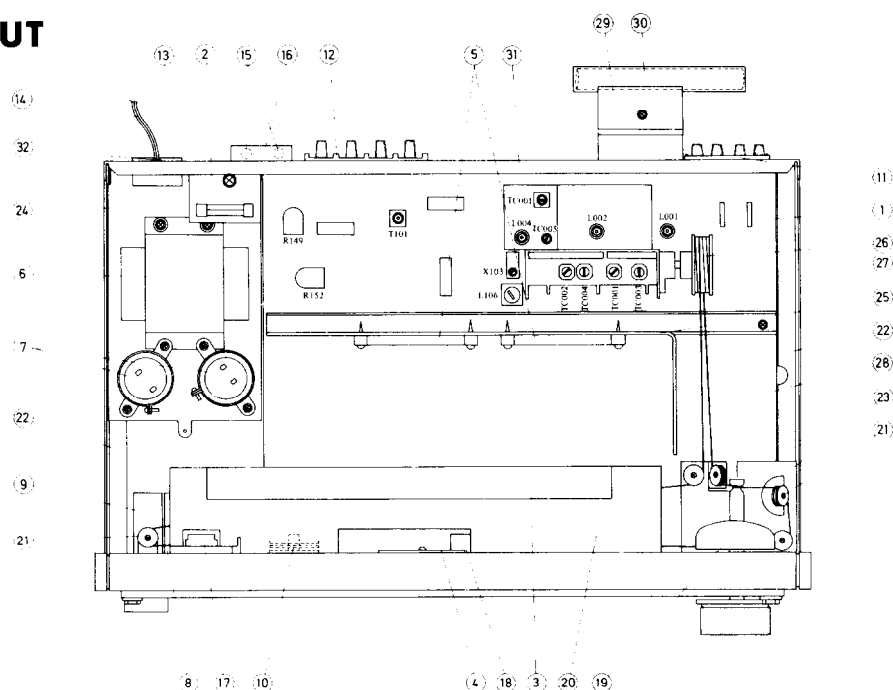
NOTES: When adjust step 5 and 6, set FM Signal Generator level as low as possible.

#### (4) FM MONO DISTORTION AND MULTIPLEX ALIGNMENT



Alignment	Step	FM Signal Generator	Stereo Modulator	Dial to set	Adjust	Output Indicator	Adjust for	Remarks
Mono Distortion		98 MHz 400 Hz 100% mod. 60 dB	_____	98 MHz	T101 Bottom	Distortion Analyzer	Minimum	
19 KHz	1	98 MHz 400 Hz no mod. 60 dB	_____	98 MHz	R152	Frequency Counter	19000±19 Hz	
	2	STEREO INDICATOR should light up when stereo program is being received.						
Multiplex	1	98 MHz EXT. Mod.	Pilot Sig. 10% Main & Sub Sig. 1 KHz Lch 90%	98 MHz	R149	AC VTVM Right ch.	Minimum	Repeat step 1 & 2 as necessary
	2	Same as above	Pilot Sig. 10% Main & Sub Sig. 1 KHz Rch 90%	98 MHz	R149	AC VTVM Left ch.	Minimum	

# CHASSIS LAYOUT



## PARTS LIST U.S.A. Model

REF. NO.	PARTS NO.	DESCRIPTION
1	13779595	NAAR-395 Tuner and Pre/Main Amp. P.C.B.
2	13779596	NAFU-396 Power Fuse P.C.B.
3	13779597	NAPL-397 Dial Illumination Lamp P.C.B.
4	13779599	NAPL-399 STEREO/LOCKED Indicator P.C.B.
5	222010	STK-075 Power Amp. IC
6	230185	NPT-616D Power Transformer
7	3504081	4700μF35V Elect. Capacitor
8	3504012	0.01μF±20% 125V UL Capacitor
9	25035047	NPS-111-L12P Power Switch
10	25030074	NRS-144-30Y Speaker Selector Switch
11	25060003	NTM-4PUN1-L Antenna Terminal
12	25060001A	NTM-4WPUN1 Speaker Terminal
13	25050008A	S-16432 AC Outlet
14	253072	AS-UC AC Cord
15	252025	2.5A-T Speaker Fuse
16	25050004	Fuse Holder with Cover
17	243069	NIND-0500S69 Strength Meter
18	27110037	Front Bracket
19	27205006	Drive Shaft Ass'y
20	27250011A	Lamp Case
21	27185003	Dial Pulley
22	27115018	Side Bracket
23	27140144	Bracket, Dial Pulley
24	27130098	Bracket, Power Transformer
25	27160024	Heat Sink
26	27200019	Dial Drum
27	273803	Dial Drum Spring
28	273903	Dial Cord
29	27190024	AM Antenna Case
30	232063	NMA-1008 AM Bar Antenna
31	27120065A	Back Panel
32	270025	SP-3P-4 Strainrelief

## Universal Model

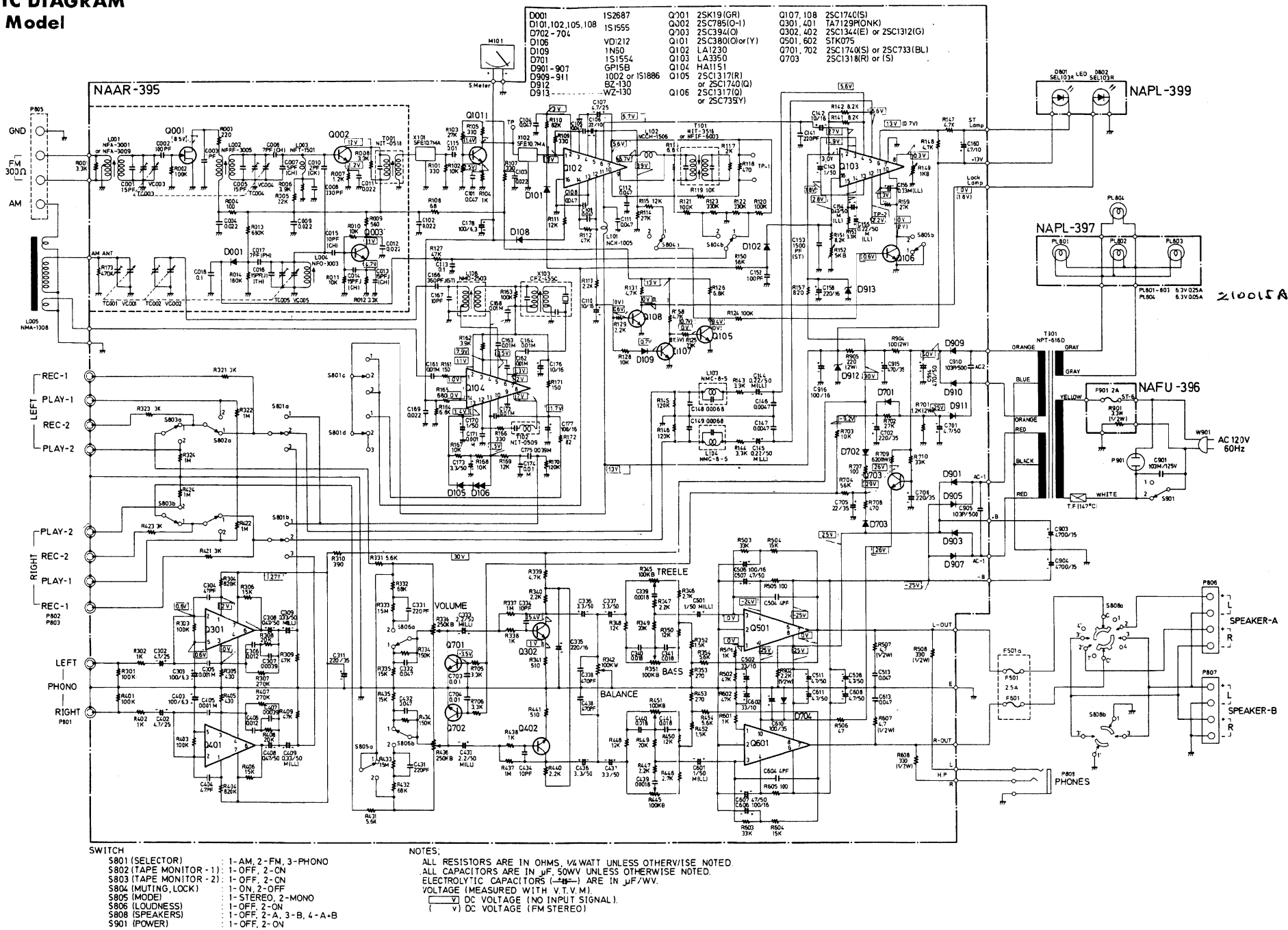
REF. NO.	PARTS NO.	DESCRIPTION
1	13780595A	NAAR-395a Tuner and Pre/Main Amp. P.C.B.
2	None	
3	13779597	NAPL-397 Dial Illumination Lamp P.C.B.
4	13779599	NAPL-399 STEREO/LOCKED Indicator P.C.B.
5	222010	STK-075 Power Amp. IC
6	230186	NPT-616ADGQ Power Transformer
7	3504081	4700μF35V Elect. Capacitor
8	3500052	PME271Y510CEE IS Capacitor
9	25035034	NPS-121-L Power Switch
10	25030074	NRS-144-30Y Speaker Selector Switch
11	25060003	NTM-4PUN1-L Antenna Terminal
12	25060001A	NTM-4WPUN1 Speaker Terminal
13	None	
14	None	
15	252025	2.5A-T Speaker Fuse
16	25050004	Fuse Holder with Cover
17	243069	NIND-0500S69 Strength Meter
18	27110037	Front Bracket
19	27205006	Drive Shaft Ass'y
20	27250011A	Lamp Case
21	27185003	Dial Pulley
22	27115018	Side Bracket
23	27140144	Bracket, Dial Pulley
24	27130098	Bracket, Power Transformer
25	27160024	Heat Sink
26	27200019	Dial Drum
27	273803	Dial Drum Spring
28	273903	Dial Cord
29	27190024	AM Antenna Case
30	232063	NMA-1008 AM Bar Antenna
31	27120066	Back Panel
32	None	

The Universal Model adds from the U.S.A. Model at the following parts.

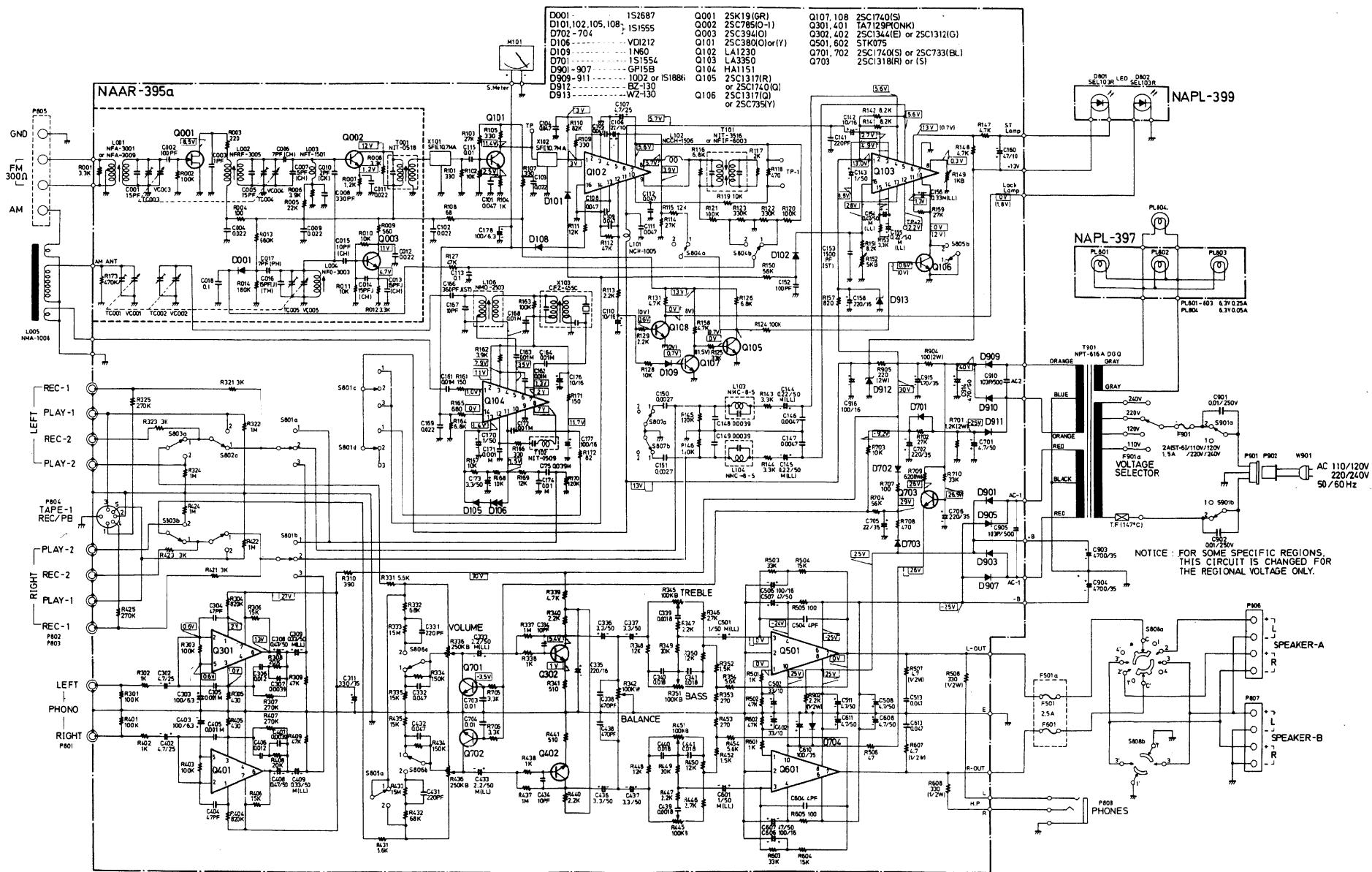
25050018	PA-125, 3P Inlet
252015	1.5A-T Power Fuse
250227	SFO40A3 PS Plug
253083	AS-CEE AC Cord
250186	SI-7205-7 VS Socket



### SCHEMATIC DIAGRAM U.S.A. Model



### SCHEMATIC DIAGRAM Universal Model



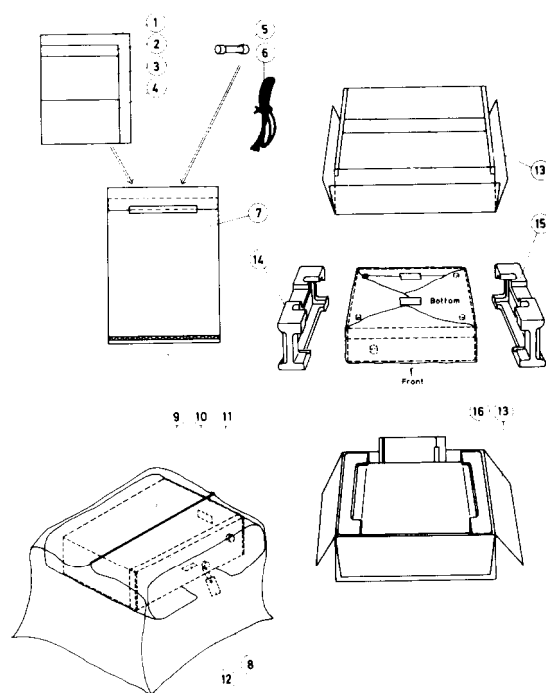
- | SWITCH                  |                                |
|-------------------------|--------------------------------|
| S801 (SELECTOR)         | 1-AM, 2-FM, 3-PHONO            |
| S802 (TAPE MONITOR - 1) | 1-OFF, 2-ON                    |
| S803 (TAPE MONITOR - 2) | 1-OFF, 2-ON                    |
| S804 (MUTING, LOCK)     | 1-ON, 2-OFF                    |
| S805 (MODE)             | 1-STEREO, 2-MONO               |
| S806 (LOUDNESS)         | 1-OFF, 2-ON                    |
| S807 (DE EMPHASIS)      | 1-75 $\mu$ SEC, 2-50 $\mu$ SEC |
| S808 (SPEAKERS)         | 1-OFF, 2-A, 3-B, 4-A-B         |
| S901 (POWER)            | 1-OFF, 2-ON                    |

NOTES:

ALL RESISTORS ARE IN OHMS, 1/4 WATT UNLESS OTHERWISE NOTED.  
ALL CAPACITORS ARE IN  $\mu$ F, 50WV UNLESS OTHERWISE NOTED.  
ELECTROLYTIC CAPACITORS (— $\Pi$ —) ARE IN  $\mu$ F/WV.  
VOLTAGE (MEASURED WITH V.T.V.M.)  
[ ] V DC VOLTAGE (NO INPUT SIGNAL).  
[ ] V DC VOLTAGE (FM STEREO)

# PACKING PROCEDURES

## U.S.A. Model

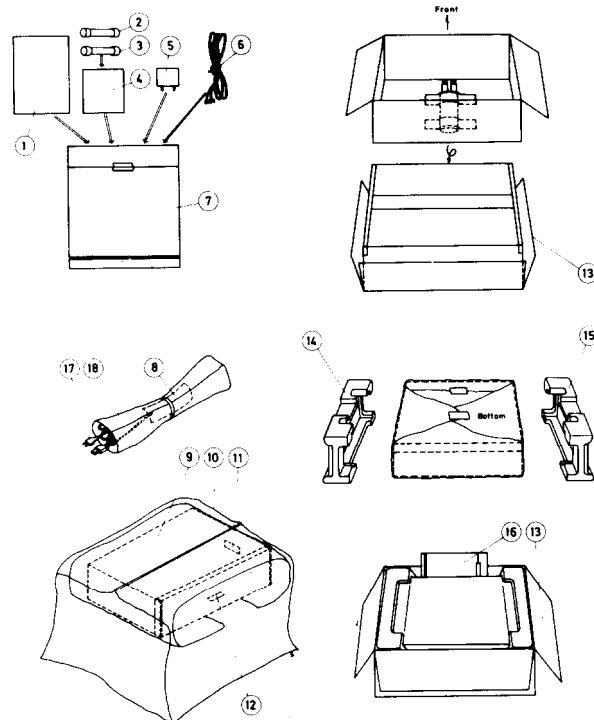


1. All printed material and accessory items are placed in a poly bag.
2. The AC Cord is wrapped in paper and wound a rubber band.
3. The cabinet composite tag is attached to the volume control.

## PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION
1	29340191	Instruction Manual
2	29358001	Service Station List
3	29355046	Caution Card for Warranty Card
4	29365003	Warranty Card
5	292025	Fuse
6	292064	FM Antenna
7	29100006A	Poly Bag
8	29380024	Tag, Cabinet Composite
9	29095027	Sheet 330x1100(m/m)
10	29100018	Poly Bag 650x750(m/m)
11	282969	Caution Label A
12	293041	Caution Label
13	29050111	Carton Box
14	29090187	Pad, Right
15	29090188	Pad, Left
16		Accessory Bag Complete

## Universal Model



1. All printed material and accessory items are placed in a poly bag.
2. The Voltage Tag is attached to the plug of AC Cord.
3. The AC Cord is wrapped in paper and wound a rubber band.

## PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION
1	29340210	Instruction Manual
2	252044	Fuse 2A(ST-6)
3	292025	Fuse
4	29100002	Poly Bag 80x150(m/m)
5	25055018	Conversion Plug CV-K-1
6	292064	FM Antenna
7	29100002	Poly Bag
8	293268	Voltage Tag
9	29095027	Sheet 330x1100(m/m)
10	29100018	Poly Bag 650x750(m/m)
11	282969	Caution Label A
12	293041	Caution Label
13	29050111	Carton Box
14	29090187	Pad, Right
15	29090188	Pad, Left
16	13780119	Accessory Bag Complete
17	13876801	AC Cord
18	290076	AC Cord Wrapper

The Germany type differs from the Universal model at the following points.

1	29340211	Instruction Manual
3.5	None	
16	13782119	Accessory Bag Complete
17	253089	AC Cord AS-VDE-C
	29365001-1	Warranty Card (Addition)